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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,010	01/29/2004	Kristy A. Campbell	M4065.1009/P1009	2009

45374 7590 08/02/2007

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EXAMINER
NGUYEN, TAN

ART UNIT	PAPER NUMBER
2827	

MAIL DATE	DELIVERY MODE
08/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,010	CAMPBELL ET AL.	
	Examiner	Art Unit	
	Tan T. Nguyen	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-28 and 39-45* is/are allowed.

6)☒ Claim(s) *29 and 31-37* is/are rejected.

7)☒ Claim(s) *30, 38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The amendment submitted by Applicants on July 16, 2007 has been received and entered.

2. Claims 1-45 are pending.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 29, 31-37 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 62, 64, 66 of U.S. Patent No. 7,105,864 (hereinafter U.S. Pat. No. '864) in view of Khan (U.S. Patent No. 5,905,673) or Kawamura (U.S. Patent No. 6,614,686) and Perner (U.S. Patent No. 6,678,200).

Regarding claims 29 and 31 of the present application, claim 62 of U.S. Patent No. 7,105,864 recites a method for operating a multiple-bit memory cell comprising: providing a memory cell comprising a host material which incorporates a plurality of metal ion species, each said species exhibiting zero field splitting; programming said

memory cell to at least one of a plurality of energy-absorbing states, each said energy-absorbing state corresponding to a separation of spin states of respective one of said plurality of metal ion species at zero magnetic field; and reading said memory device by sensing the absorption or transmission of one of a plurality of read energy pulses through said host material, said one read energy pulse corresponding to said respective one metal ion species.

Claim 62 of U.S. Patent No. 7,105,864 does not recite reading plurality of memory cells simultaneously.

Khan discloses in claim 1 an integrated circuit comprising an array of memory cells, each memory cell capable of holding a voltage corresponding to a plurality of bits; programming circuits connected to the memory cell array and voltage generation circuits simultaneously and independently programming voltages in a selected plurality of the memory cells; and in claim 9 a method of programming a memory cell array in an integrated circuit, each memory cell in the array capable of holding a voltage corresponding to a plurality of bits. The voltage that the memory cell capable of holding would be considered as the claimed energy. In claim 20, Khan recites an integrated circuit comprising an array of memory cells, each memory cell capable of holding a voltage corresponding to a plurality of bits; sense amplifier circuits connected to the memory cell array and reading voltage circuits, the sense amplifier circuits simultaneously reading voltages in a selected plurality of the memory cells to determine a corresponding plurality of bits in each of the plurality of memory cells.

Kawamura discloses in Figure 2 (1) a non-volatile memory cell is programmed by injecting hot electrons into the second trapping gate region [TSD2] (column 2, lines 30-35). As the hot electrons being injected into the trapping gate, the memory cell would be considered as absorbing energy. Kawamura discloses when one word line is selected, four bit data in eight cell transistors can be simultaneously read out to page buffer (column 8, lines 48-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of operating in claim 62 of U.S. Pat. No. '864 by providing the simultaneously reading operation of Khan or Kawamura.

The rationale is as follows: A person of ordinary skill in the art would have been motivated to simultaneously read a plurality of memory cells to reduce the reading time.

Regarding claim 34 of the present application, claim 64 of U.S. Pat. No. '864 recites the host material of the memory cell comprises a polymer.

Regarding claim 35 of the present application, claim 66 of U.S. Pat. No. '864 recites the host material of the memory cell comprises a chalcogenide glass.

Regarding claims 32, 33 and 36 of the present application, Perner discloses a MRAM device having a number of MRAM blocks [101, 202, 203] can be read simultaneously (column 4, lines 39-40).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the memory device of Khan or Kawamura by providing the appropriate memory type.

The rationale is as follows: A person of ordinary skill in the art would have been motivated to used the appropriate memory type to obtain maximum efficiency of the memory device.

Regarding claim 37, it is conventional that the read voltages applied to the selected memory cells would not change the programming state of the selected memory cells.

5. Claims 30 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 1-28 and 39-45 are allowed.

7. Applicant's arguments with respect to claims 29, 31-37 have been considered but are moot in view of the new ground(s) of rejection.

8. **REMARKS**

Applicant asserted in the REMARKS that U.S. Pat. No. 5,905,673 to Khan does not disclose "reading said plurality of memory cells simultaneously by sensing the absorption or transmission of a read energy pulse through each of said plurality of memory cells". Applicant agreed that Khan may disclose a simultaneously read method. The Examiner agrees that Khan does not show or suggest sensing the absorption or transmission of a read energy pulse. However, claim 62 of new reference to Campbell et al. (U.S. Patent No. 7,105,864) recites a method of operating a multiple-bit memory cell including the step of reading the memory cell by sensing the absorption or transmission of one of a plurality of read energy pulses. It would have been obvious

to a person of ordinary skill in the art at the time the invention was made to modify the operating method in claim 62 of U.S. Pat. No. '864 by providing the simultaneously reading operation of Khan and Kawamura to reduce the reading time.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan T. Nguyen whose telephone number is (571) 272-1789. The examiner can normally be reached on Monday to Friday from 07:00 AM to 03:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian, can be reached at (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan T. Nguyen
Primary Examiner
Art Unit 2827
July 26, 2007